

CLAIMS

What is claimed is:

1. A multichannel photocoupler comprising:
 - at one or more input sides: one or more time division means for subjecting one or more input signals at one or more respective channels to time division; and
 - a light-emitting element communicating at least one of the time-divided signal or signals to one or more output sides;
 - at one or more output sides: a light-receiving element receiving at least one of the time-divided signal or signals from the light-emitting element; and
 - one or more output signal separation means for decoding at least one of the time-divided signal or signals and for outputting same to at least one of the respective channel or channels.
2. A multichannel photocoupler according to claim 1 further comprising:
 - one or more synchronization means for, in the event that one or more signals at at least one of the respective channel or channels is transferred from one or more input sides to one or more output sides, synchronizing the signal or signals through use of one or more prescribed clock signals.
3. A multichannel photocoupler according to claim 2 wherein:
 - at least one of the synchronization means at at least one of the input side or sides, in the event that one or more input signals at at least one of the respective channel or channels is subjected to time division through use of one or more prescribed clocks, generates one or more start bits before one or more signals at one or more first channels; and
 - at least one of the synchronization means at at least one of the output side or sides possesses functionality for detecting at least one of the start bit or bits.
4. A multichannel photocoupler according to claim 2 comprising, as one or more means for transferring one or more clock synchronization signals from one or more input sides to one or more output sides:
 - at at least one of the input side or sides: a clock-signal-transfer light-emitting element other than the light-emitting element for transfer of one or more signals; and

6 at at least one of the output side or sides: a clock-signal-transfer light-receiving
7 element other than the light-receiving element for transfer of one or more signals.

- 1 5. A multichannel photocoupler according to claim 2 comprising, as one or more means
2 for transferring one or more clock synchronization signals from one or more input sides
3 to one or more output sides:

4 transfer of one or more clock synchronization signals simultaneous with one or more
5 signals at at least one of the respective channel or channels through use of the light-
6 receiving element and the light-emitting element transferring one or more signals.

- 1 6. A multichannel photocoupler according to claim 5 comprising, as one or more means
2 for distinguishing between or among one or more clock synchronization signals and one
3 or more signals at at least one of the respective channel or channels, one or more means:

4 for, at at least one of the input side or sides, varying one or more electric currents
5 flowing at the light-emitting element so as to impart one or more differences to one or
6 more optical intensities in one or more clock synchronization signals and one or more
7 signals at at least one of the respective channel or channels transferred to at least one of
8 the output side or sides, and for causing same to be transferred to at least one of the
9 output side or sides; and

10 for, at at least one of the output side or sides, separating one or more signals received
11 at the light-receiving element and having one or more differences in one or more optical
12 intensities into one or more signals at at least one of the respective channel or channels
13 and one or more clock synchronization signals.

- 1 7. A multichannel photocoupler comprising:

2 at one or more input sides: a light-emitting element transferring one or more signals to
3 at least one of the output side or sides; and

4 one or more level coupling means for carrying out level coupling with respect to one
5 or more input signals at at least one of the respective channel or channels so as to impart
6 one or more changes in one or more optical intensities at the light-emitting element and
7 for causing same to be transferred to at least one of the output side or sides;

8 at one or more output sides: a light-receiving element receiving one or more signals
9 imparted with one or more changes in one or more optical intensities produced by the
10 light-emitting element; and

11 one or more output signal separation means for decoding at least one of the signal or
12 signals and for outputting same to at least one of the respective channel or channels.

- 1 8. A multichannel photocoupler according to claim 7 further comprising:
2 one or more monitor light-receiving elements provided at at least one of the input side
3 or sides;

4 wherein one or more changes over time in one or more optical intensities at the light-
5 emitting element is fed back to at least one of the level coupling means.

- 1 9. A multichannel photocoupler according to any of claims 1 through 8 wherein:
2 one or more output stages at at least one of the respective channel or channels
3 comprises one or more transistor elements.

- 1 10. A multichannel photocoupler according to any of claims 1 through 8 wherein:
2 one or more output stages at at least one of the respective channel or channels
3 comprises one or more thyristor elements.

- 1 11. A multichannel photocoupler according to any of claims 1 through 8 wherein:
2 one or more output stages at at least one of the respective channel or channels
3 comprises one or more triac elements.